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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/680,261	MATAMA, TORU	
	<b>Examiner</b>	<b>Art Unit</b>	
	Nhan T. Tran	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10/8/2003, 3/25/2004 & 3/1/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 21-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 35-46 is/are allowed.
- 6) ☒ Claim(s) 21, 22, 24, 25, 27, 28 and 30-34 is/are rejected.
- 7) ☒ Claim(s) 23, 26 and 29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/276,759.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/276,759 filed on 3/26/1999.

### ***Information Disclosure Statement***

2. The information disclosure statements (IDS) submitted on 10/8/2003, 3/25/2004 & 3/1/2005 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

Note: although IDS filed 10/8/2003 does not provide copies of foreign patent documents and NPL documents, the copies of these documents are found in the parent application 09/276,759.

### ***Specification***

3. The title of the invention (Image Processing Apparatus) is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Preliminary Amendments***

4. Preliminary amendments filed 10/8/2003 are acknowledged. Currently, claims 1-20 are canceled. Claims 21-46 are pending.

***Claim Objections***

5. Claim 21 is objected to because of recitation of "comprising;" which should be corrected to read as -- comprising: --.

Claim 24 is objected to because of recitation of "data-of" which should be corrected to read as -- data of --.

Claims 31 & 42 are objected to because of recitation of "said image processing means" which should be corrected to read as -- an image processing means --.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 21, 22, 24, 25, 27, 28, 30 & 31 are rejected under 35 U.S.C. 102(a) as being anticipated by Mann (US 5,828,793).

Regarding claim 21, Mann discloses an image processing apparatus (Fig. 8), comprising:

acquiring means (image source 202 and system bus 206 shown in Fig. 8) for acquiring image data of a plurality of first images (images S1 – S3 shown in Fig. 7B) to

be synthesized that are obtained by taking a single scene under different exposure conditions (underexposed, properly exposed and overexposed images; see col. 3, lines 33-36; col. 10, lines 58-67 and col. 11, lines 40-54);

synthesis means (210, combiner 246) for synthesizing said image data of said plurality of first images obtained by said acquiring means to generate synthesized image data of a composite image (see Figs. 7A, 7B & 8; col. 3, lines 34-65 and col. 11, lines 13-21 and col. 12, lines 32-59);

image processing means (210, filters 255, gamma correction) for subjecting the synthesized image data of said composite image by said synthesis means to dodging processing (i.e., gamma correction; see col. 13, lines 4-8), wherein said synthesis means sets synthesis conditions (i.e., weighting conditions, certainty functions) of image synthesis using said image data of said plurality of first images, and synthesizes said image data of said plurality of first images using said set synthesis conditions (see Fig. 7A; col. 11, lines 5-21 and col. 12, lines 36-59).

Regarding claim 22, Mann also discloses that the synthesis means performs said image synthesis after converting said image data of said plurality of first images to subject luminance data of logarithm scales (see Figs. 1, 3 & 4; col. 4, lines 48-60; col. 5, lines 5-24; col. 6, lines 65-67 and col. 9, line 15).

Regarding claim 24, also disclosed by Mann is weighting to each image to be synthesized at the time of the image synthesis is determined in accordance with the image data of said plurality of first images (see col. 11, lines 13-21).

Regarding claim 25, Mann further discloses that said plurality of first images are taken by a digital camera (col. 11, lines 43-46), and said synthesized image data output from said synthesis means (to display screen 234 shown in Fig. 8; col. 12, lines 44-49).

Regarding claim 27, Mann discloses an image processing apparatus (Fig. 8), comprising:

acquiring means (image source 202 and system bus 206 shown in Fig. 8) for acquiring image data of a plurality of second images obtained by taking a single scene under different exposure conditions (Fig. 7B; col. 3, lines 33-36; col. 10, lines 58-67 and col. 11, lines 40-54, wherein "a plurality of second images" are represented by a sequence of video frames or series of images stored in the mass storage device 208);

selection means (CPU 220 in combination with user interface 250 and keyboard 230) for selecting a plurality of optimal first images (Fig. 7B, wherein "optimal first images" are represented by a series of differently exposed images in the same scene) for synthesis among said image data of said plurality of second images obtained by said acquiring means (col. 12, line 61 – col. 12, line 59, and note that the images a series of differently exposed images are selected manually or automatically for synthesis).

synthesis means (210, combiner 246) for synthesizing image data of said plurality of the optimal first images selected by said selection means to generate synthesized image data of a composite image, wherein said synthesis means sets synthesis conditions (i.e., weighting conditions, certainty functions) of image synthesis using said image data of said plurality of first images, and synthesizes said image data of said plurality of first images using said set synthesis conditions (col. 11, lines 5-21 and col. 12, lines 36-59).

Regarding claim 28, this claim is also met by the analysis of claim 21.

Regarding claims 30 & 31, these claims are also met by the analyses of claims 24 & 25.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mann (US 5,828,793) in view of Shiraiwa et al. (US 6,160,579).

Regarding claims 32 & 33, Mann does not explicitly disclose that said selection means selects said plurality of optical first images for synthesis using shooting time of day and said image data of said plurality of second images.

However, as taught by Shiraiwa, images of a same scene are selected for synthesis by finding correlation between the images based on the shooting times which are close together within a predetermined time period as a group of images out of a plurality of images stored in a camera memory so as to effectively process the group of images for synthesis to prevent the boundaries of luminances of images from becoming unnatural (see Shiraiwa, col. 7, line 65 – col. 8, line 13 and abstract).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the image processing apparatus in Mann to include the teaching of Shiraiwa to select the plurality of optimal first images for synthesis using shooting time of day and said image data of said plurality of second images so as to effectively process the group of images for synthesis to prevent the boundaries of luminances of images from becoming unnatural.

Regarding claim 34, Mann in view of Shiraiwa further discloses said selection means judges a plurality of third images (a pair of images obtained in Mann) obtained by taking a single scene under different exposure conditions using said shooting time of day of said plurality of second images (note that the analyses of claims 32 & 33 are applied in this claim), prepares respective histograms of said plurality of third images using image data of said plurality of third images, and selects said plurality of optimal



first images for synthesis using the prepared respective histograms (see Mann, col. 8, lines 16-64, wherein a cross histogram is created for each pair of images for a plurality of images to select optimal images for synthesis).

***Allowable Subject Matter***

8. Claims 23, 26, 29 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 35-46 are allowed (*note that dependent claim 42 should be corrected to comply with the objection in section 6 above*).

The following is an examiner's statement of reasons for allowance:

Regarding independent claims 35 & 39, the prior art of record fails to teach or fairly suggest the combination of all limitations of each of claims 35 & 39 that includes "...determines logarithmic values of the shutter speeds and the aperture sizes of the stop when said one image and said respective images were taken respectively, calculates each first difference between each of the determined logarithmic values of the shutter speeds when said respective images were taken and each of the determined logarithmic values of the shutter speeds when said one image was taken, and each second difference between each of the determined logarithmic values of the aperture sizes of the stop when said respective images were taken and each of the determined logarithmic values of the aperture sizes of the stop when said one image was taken,

and adds said each first difference and said each second difference for said respective images to calculate the shifting amounts of the respective images."

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 23, the prior art of record also fails to teach or fairly suggest the limitations of claim 23 that includes "*said synthesis conditions are shifting amounts of the subject luminance data of respective images from the subject luminance data of one image among said plurality of first images, and wherein said synthesis means selects pixels without washed-out highlights and dull shadows from the subject luminance data of said one image and said respective images, respectively, determines respective averages of the subject luminance data of sets of the selected pixels, and calculates each difference between each of the determined averages of said respective images and the determined average of said one image as each of the shifting amounts of the respective images.*"

Regarding claims 26 & 29, the prior art of record also fails to teach or fairly suggest the limitations of each of claims 23 & 29 that includes "*said synthesis means comprises: a memory for storing the image data of said plurality of first images; converting means for converting said image data of said plurality of first images read out from said memory to subject luminance data of logarithmic scales; setting means for setting said synthesis conditions as shifting amounts of the subject luminance data of respective images from the subject luminance data of one image among said plurality of first images; a first adder for adding the set shifting amounts to the subject luminance*

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*data of said respective images, respectively; a multiplier for performing weighting to the subject luminance data of said one image and the added subject luminance data of said respective images, respectively; and a second adder for adding the weighted subject luminance data of said one image and the weighted added subject luminance data of said respective images."*

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (571) 272-7371. The examiner can normally be reached on Monday - Friday, 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Nhan Tran', with a stylized, flowing script.

NHAN T. TRAN  
Patent Examiner